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SERRANUS INCISUS, NEW SPECIES FROM THE CARIBBEAN SEA (PISCES: SERRANIDAE)

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Abstract.—A new species of *Serranus* is described from Jamaica and Puerto Rico which has the dorsal fin more deeply incised than other Atlantic species. The fish occurs with other particulate-plankton feeders in deep reef areas and seems most similar to the western Atlantic S. *luciopercanus*.

Introduction

During investigation of reef fish communities on outer reef faces a new species of small seabass was observed in mixed schools of small, particulate plankton-feeding fishes. This undescribed species is most closely related to the *Serranus* complex, but unlike the other members of the complex it is adapted for a particulate plankton-feeding existence. The species is superficially similar to other zooplanktivores, such as *Schultzea beta*, and may be one reason it has not been noted before.

Serranus incisus new species
Figs. 1–3

Diagnosis.—A small species, largest known specimen 28.2 mm standard length (SL). Dorsal fin X,10, last ray split to base; anal fin III,7, last ray split to base; pectoral fin 17-17; pelvic fin I,5; gill rakers 26; branchiostegals 7 (4 + 3); vertebrae 10 + 14. Central opercular spine curved upward, upper spine reduced. Dorsal fin deeply incised at rear of spinous portion with black mark at outer end of spines 2–4. Body with two dark parallel stripes; upper stripe originating behind opercle, lower on belly, ending as separate spots at base of caudal fin.

Description.—Various measurements of the holotype, 28.2 mm SL (in parentheses) and their range in the paratypes (23.4, 18.9 and 12.6 mm SL) in percent of standard length are as follows; head length (33) 34–35, eye diameter (11) 12–13, predorsal length (38) 37–44, preanal length (56) 57–64, depth anal-fin origin (28) 20–23, minimum depth caudal peduncle (12) 12–14, interorbital distance (9) 10–12, pectoral-fin length (22) 22 (2 specimens) and pelvic-fin length (19) 18 (2 specimens).

Third dorsal-fin spine longest, 8th shortest, first relatively short, about length of 7th spine. The segmented dorsal-fin rays become progressively shorter posteriorly, all branched near their tips.

Second anal-fin spine strongest; 3rd spine is slightly longer, but less ro-

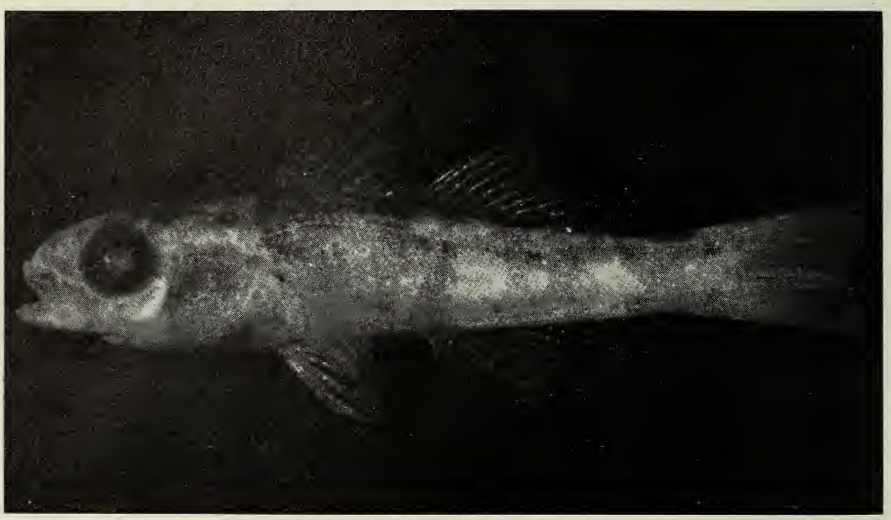

Fig. 1. Holotype of *Serranus incisus*, ANSP 137657, 28.2 mm SL, collected at Piedra de Carabinero, Mona Island, Puerto Rico.

bust. Segmented rays become progressively shorter posteriorly, all branched near tips. Rear margins of both anal and dorsal fins rounded.

Caudal fin with 17 principal rays, 9 on upper lobe, 8 on lower; procurrent caudal rays 8–9 both dorsally and ventrally. Only upper and lowermost principal rays are unbranched. Third and 15th caudal rays longest. Posterior edge of fin emarginate.

Outermost and anteriormost pelvic-fin ray longest. All rays branched near midlength or closer to base. Third through 13th from dorsalmost pectoral-fin rays branched near tips. Third or 4th and 12th or 13th pectoral rays longest among adjacent rays, near margin of fin slightly emarginate.

Opercle bears three spines, uppermost reduced, somewhat embedded in skin covering opercle margin; middle spine by largest by far, curves strongly upwards; lower spine flattened, projecting posteriorly. Preopercle margin serrate with fewer serrations on its lower limb.

Body and chest densely covered with small ctenoid scales. Scales on preopercular ctenoid, becoming cycloid beneath eye and cover this area, nape scaled with scales becoming cycloid where they project as anterior V over occiput; no scales visible at base of dorsal, anal or pelvic fins; few rows of small, cycloid scales on pectoral-fin base; several rows, particularly dorsally and ventrally, of cycloid scales on caudal-fin base.

Dentition greatly reduced; a single row of tiny canine teeth on upper jaw, single row becoming smaller anteriorly on lower jaw, a few lateral teeth on

Fig. 2. Live specimen of *Serranus incisus*, approximately 24 mm SL, photographed in an aquarium. The white markings on the spinous dorsal fin and the two dark stripes on the body are visible. This specimen from 6 miles south of La Parguera, Puerto Rico subsequently disappeared.

lower jaw slightly enlarged. Palatine teeth villiform, uniserial; vomerine teeth in patch. Tip of tongue rounded and flattened.

Holotype gill rakers 26. Premaxillary moderately protrusible, with mouth closed, only upper margin of maxillary beneath lacrymal; no supramaxillary.

The pigment pattern of preserved specimens shown in Fig. 1. Dark markings of dorsal fin are apparent and dark spots on caudal-fin base faintly so. Live specimen shown in Fig. 2. Anterior part of dorsal fin has distinctive marking in life. Membrane near fin base between spines 1–4 dusky, distally at about midpoint of spine 2 there is faint white area between spines 2 and 4, black area more distally between spines 2 and 5. Fin margin between spine 3 and 8 edged in white.

Body with two brownish stripes narrower than width of pupil; the first running from upper margin of opercle to dorsal portion of caudal-fin base, ending in oval slightly darker than stripe itself; second running from midpoint of pectoral-fin base to ventral portion of caudal-fin base, ending as darker oval below similar marking of upper stripe. Third, narrower stripe running from temporal region to near anterior base of soft dorsal fin.

Upper and lowermost rays and membranes of caudal fin alternately banded brown and yellow; central portion of fin nearly colorless.

Distribution and habitat.—Serranus incisus is known from Puerto Rico (La Parguera and Mona Island) and Jamaica (Discovery Bay). I observed specimens I believed to be this species off Varsenbaai, Curacao in July 1971 but I collected none. In all instances I encountered *S. incisus* only on the steep slopes or vertical faces on the edge of island shelves at

Fig. 3. Portion of a mixed school of small particulate plankton-feeding fishes photographed at 36 m depth, "Buoy Reef," Discovery Bay, Jamaica. Present are numerous juvenile *Haemulon striatum* (A), several *Schultzea beta* (B), and a few *Serranus incisus* (C). Due to the superficial similarities of *S. beta* and *S. incisus* it is impossible to positively identify to species individual fishes visible in the photograph.

depths of 30–60 m. Often the species occurred with other particulate plankton-feeding fishes, particularly *Schultzea beta* and juvenile *Haemulon striatum* (Fig. 3). In these mixed groups *S. incisus* often represented only a small percentage of the individuals present. While superficially similar to the other species in appearance, the distinctive markings on the spiny dorsal fin of *S. incisus* easily identify it.

In all cases these mixed zooplankton-feeding groups occurred above a large object on the bottom. In the case of the Jamaican specimens, these objects were isolated clumps of coral 1–3 m high on a sloping (20°) sandy plain. For the Puerto Rico specimens the objects were large barrel sponges (*Xestospongia muta*) on a narrow shelf protruding from a vertical wall (Mona Island) and on a steep (45°) rocky slope (La Parguera).

Etymology.—From the Latin *incisus* in reference to the deeply cleft dorsal fin.

Relationships.—The position of this species within the family Serranidae is uncertain, largely due to the confused nature of generic and higher classification within the group.

While superficially most similar to *Schultzea beta*, the new species is clearly not closely related to it. The two species share the deeply indented

dorsal fin and basic morphology found in many particulate zooplankton feeders, yet differ in branchiostegal number, upper jaw morphology (see Robins and Starck, 1961: Fig. 8b) and other features.

The affinities of the new species are apparently closest to western Atlantic *Serranus* and is placed in this genus until such time as a reconsideration of serranid systematics determines otherwise. The generic characters put forward by Robins and Starck (1961:261) need only slight modification to include the new species. In their treatment of *Serranus* the spinous and soft portions of the dorsal fin are broadly united, but with a noticeable notch between them in some species. The notch depth is greater in *S. incisus* than in other Atlantic members of *Serranus* but not significantly more so when considering the range of this character in the other species. Robins and Starck (1961:261) reported members of *Serranus* to have small wedges of scales extending onto the basal portions of the dorsal and anal-fin membranes. These scales could not be found in *S. incisus*, and if present are exceedingly small. Whether *S. incisus* is hermaphroditic like other *Serranus* is unknown. Except for the above exceptions, *S. incisus* fits the 14 other characters cited by Robins and Starck (1961) for the genus *Serranus*.

Among western Atlantic members of *Serranus*, *S. incisus* seems most similar to *S. luciopercanus*. The two species share the upcurved middle opercular spine which no other western Atlantic *Serranus* possesses. In addition the upper spine is reduced in both. There is also a general similarity in color pattern with two longitudinal bands ending at the caudal-fin base.

Material examined.—All collections by P. L. Colin.

Holotype: ANSP 137657, 28.2 mm SL; Puerto Rico, Mona Island, Piedra de Carabinero, 33 m depth, 13 October 1974, collected with quinaldine-alcohol solution.

Paratypes: UMML 32963 (1, 23.4), Jamaica, Discovery Bay, "Buoy Reef," coral head on east side, 36 m depth, 7 August 1971, collected with quinaldine-alcohol solution; USNM 216596 (1, 18.9), Jamaica, Discovery Bay, "Buoy Reef," coral head (*Agaricia undata*) on west side, 33 m depth, 7 February 1973, multiprong spear; ANSP (1, 12.6), Jamaica, same locality as USNM 216596, 27 June 1972, Quinaldine-alcohol solution.

Another individual, shown in Fig. 2, from Puerto Rico, 6 miles south of La Parguera, on steep slope into deep water, 60 m depth, 13 August 1976 and retained alive for photography in aquarium, subsequently disappeared.

Acknowledgments

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Literature Cited

Robins, C. R., and Starck, W. A., II. 1961. Materials for a revision of *Serranus* and related fish genera. Proc. Acad. Nat. Sci. Philadelphia 113(11):259–314.

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